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IS : 2699 - 1982

(Reaffirmed 2012)

Indian Standard

SPECIFICATION FOR
FLATS AND FLATS' SCREWS

(First Revision)

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Indian Standard

SPECIFICATION FOR FLATS AND FLATS' SCREWS

(First Revision)

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Indian Standard

SPECIFICATION FOR FLATS AND FLATS' SCREWS

(*First Revision*)

0. FOREWORD

0.1 This Indian Standard (First Revision) was adopted by the Indian Standards Institution on 2 April 1982, after the draft finalized by the Spinning Machinery (Cotton System) Sectional Committee had been approved by Textile Division Council.

0.2 This standard was first published in 1964 and covered the requirements of flats for cards of 1 016 mm width only. The standard has been revised to cover flats of all widths and the requirements of material for flats' screws and surface finish of the flat have also been updated.

0.3 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test, shall be rounded off in accordance with IS : 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This standard prescribes the requirements for bare flats and flats' screws for revolving flat card.

1.2 This standard covers flats and flats' screws for use with flat driving chains conforming to IS : 1927-1980†.

1.3 This standard does not cover the requirements of fillets to be mounted on the flats.

2. REQUIREMENTS

2.1 Flats

2.1.1 Material — The flats shall be made of grey iron casting conforming to Grade FG 200 of IS : 210-1978‡ subject to the condition that maximum

*Rules for rounding off numerical values (revised).

†Specification for flat driving chains (first revision).

‡Grey iron castings (third revision).

limit of sulphur and phosphorus in the composition of the casting shall be as under:

Sulphur	0.09 percent
Phosphorus	0.04 percent

2.1.2 Freedom from Defects — The flats shall be free from casting defects, such as blow holes, distortion, hardspots and cold shuts.

2.1.3 Dimensions — The dimensions of flats shall conform to the requirements of Fig. 1.

2.1.4 Surface Finish — The four toes of flat and other surfaces shall have surface finish as indicated in Fig. 1 (see IS : 3073-1967*).

2.2 Flats' Screws

2.2.1 Property Class — Flats' screws shall conform to property class 4.6 of IS : 1367 (Part III)-1979†.

2.2.2 Dimensions — The dimensions of flats' screw shall conform to the requirements of Fig. 2.

2.2.3 Hand of Screw Threads — The collar and the screw of the right-hand side of flat shall have right-hand thread, and the collar and the screw of the left-hand side of flat shall have left-hand thread.

NOTE — The side of flat corresponds to the side of carding engine. If an observer stands at the delivery and of the carding engine and faces the flow of material, the side on his right is called the right-hand side, and the side on his left is called the left-hand side of the carding engine.

2.2.4 Size of Screw Threads — The flats' screw and inside of the collars of the flats shall be provided with threads of size M8 [see IS : 4218 (Part VI)-1978‡].

2.2.5 Hardness — The flats' screws shall be hardened and polished. The hardness when measured by the method prescribed in IS : 1586-1968§ shall be within 40-45 HRC.

2.2.5.1 In case of flats' screws made of case-hardened steel, depth of case shall be 0.1 mm minimum.

3. MARKING

3.1 Each flat and flat screw shall be marked with the following:

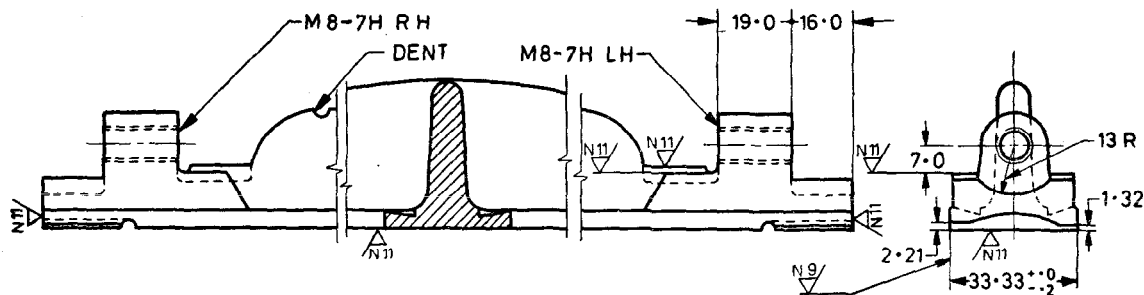
a) Manufacturer's name, and trade-mark, if any; and

*Assessment of surface roughness.

†Technical supply conditions for threaded steel fasteners: Part III Mechanical properties and test methods for bolts, screws and nuts with full loadability (second revision).

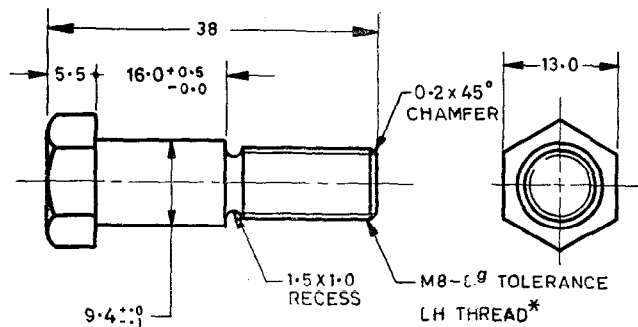
‡ISO Metric screw threads: Part VI Limits of sizes for commercial bolts and nuts (diameter range 1 to 52 mm) (first revision).

§Methods for Rockwell hardness test (B and C scales).



All dimensions in millimetres.

FIG. 1 A TYPICAL FLAT



*Screw for right-hand side shall have same dimensions but right-hand screw threads.

All dimensions in millimetres.

FIG. 2 FLATS' SCREW FOR LEFT-HAND SIDE

- b) A dent to indicate the side of the flat (the dent shall be cast in the top surface of the left-hand side of the flat).

3.1.1 The flats and flats' screws may also be marked with the ISI Certification Mark.

NOTE — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act and the Rules and Regulations made thereunder. The ISI mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well-defined system of inspection, testing and quality control which is devised and supervised by ISI and operated by the producer. ISI marked products are also continuously checked by ISI for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

4. PACKING

4.1 The flats with flats' screws after being coated with grease shall be packed in wooden cases. In the wooden case, they shall be laid horizontally and supported on two wooden slats on either end near the collars. Each layer of flats shall be separated from the next layer by wooden slats. A case shall generally contain 55 flats. The wooden case shall generally be as shown in Fig. 3.

5. SAMPLING

5.1 Lot — In any consignment, the number of flats and flats' screws delivered to a buyer against a despatch note, shall constitute a lot.

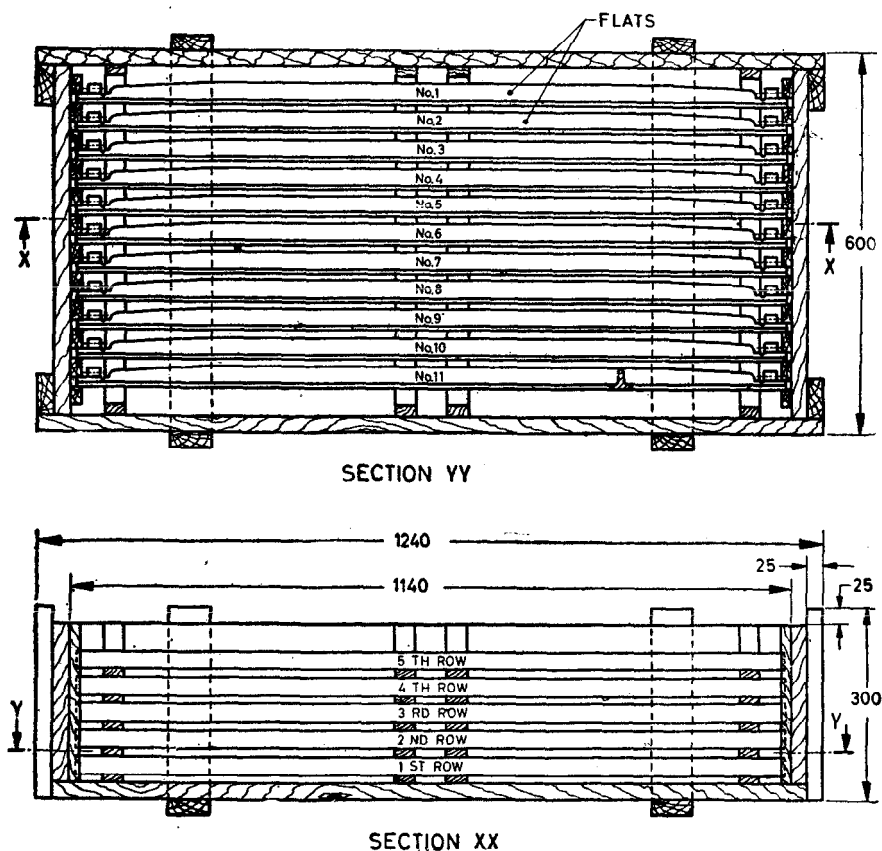
5.2 Unless otherwise agreed to between the buyer and the seller, the number of flats and flats' screws to be selected for inspection, shall be according to col 1 and 2 of Table 1. The flats and flats' screws shall be selected at random. To ensure the randomness of selection, methods given in IS : 4905-1968* shall be followed.

TABLE 1 SAMPLE SIZE AND PERMISSIBLE NUMBER OF DEFECTIVES

(*Clauses 5.2 and 5.3*)

LOT SIZE	SAMPLE SIZE	PERMISSIBLE NUMBER OF DEFECTIVES	SUB-SAMPLE SIZE
(1)	(2)	(3)	(4)
Up to 110	13	0	3
111 to 330	20	0	5
331 and above	32	1	8

*Methods for random sampling.



NOTE — Five rows of flats, 11 in each row.

All dimensions in millimetres.

FIG. 3 PACKING BOX FOR 55 FLATS (BARE)

5.3 Criteria for Conformity — The lot shall be considered conforming to the requirements if the following conditions are satisfied:

<i>Characteristic</i>	<i>Number of Tests</i>	<i>Criteria for Conformity</i>
Dimensions and freedom from defects	According to col 2 of Table 1	Number of defective flats or screws should not exceed the corresponding number given in col 3 of Table 1
Hardness and surface finish	According to col 4 of Table 1	All flats meet the relevant requirements

INDIAN STANDARDS

ON

SPINNING MACHINERY

IS:

- 837-1982 Doffer and flat stripping comb blades (*first revision*)
- 838-1976 Tin rollers for cotton ring spinning frames (*first revision*)
- 1927-1980 Flat driving chains (*first revision*)
- 2510-1976 Bottom rollers for drafting systems (*third revision*)
- 2699-1982 Flats and flats' screws (*first revision*)
- 3056-1965 Lap rods
- 3078-1976 Rings for spinning and doubling frames (*third revision*)
- 3176-1971 Anti-friction bearing type top rollers for ring and speed frames (*first revision*)
- 3183-1965 Saw-toothed wire for licker-in cylinder
- 3190-1965 Designation of sides and hand of spinning preparatory, spinning and doubling machinery
- 3523-1974 Metal travellers for ring spinning frame (*second revision*)
- 3698-1977 Spindles for warp ring frames (*first revision*)
- 3934-1974 Aluminium plug type spindles for spinning and doubling frames (*first revision*)
- 4474-1967 Glossary of terms relating to drafting in spinning machinery
- 4892-1968 Synthetic rubber aprons (reinforced) for drafting systems
- 5138-1981 Ear-shaped metal travellers for doubling frames (*first revision*)
- 5938-1970 Spindle gauges for cotton ring spinning and ring doubling (twisting) frames
- 6001-1971 Flyer spindles
- 6068-1970 Nomenclature of spinning machinery (preparatory to doubling) — Cotton system
- 6686-1972 Nose bars for speed and ring spinning frames
- 6786-1972 Leaf gauges for carding engine (metric system)
- 7175-1974 Cots for top rollers
- 7488-1974 Working widths of worsted and woollen cards
- 7875 (Part I)-1976 Sliver cans used in textile mills: Part I General requirements
- 7875 (Part II)-1975 Sliver cans used in textile mills: Part II Vulcanized fibre sliver cans
- 7875 (Part III)-1975 Sliver cans used in textile mills: Part III Aluminium alloy sliver cans
- 8750-1978 Code of practice for packing of bottom rollers for drafting systems
- 8831-1978 Code of practice for maintenance of bottom rollers for drafting systems
- 9525-1980 Wires for flexible card clothings
- 9568 (Part I)-1980 Metallic card clothing: Part I Terminology
- 9568 (Part II)-1981 Metallic card clothing: Part II Bead wires
- 9568 (Part III)-1982 Metallic card clothing: Part III Wires for cylinder, doffer and licker-in

INTERNATIONAL SYSTEM OF UNITS (SI UNITS)

Base Units

Quantity	Unit	Symbol
Length	metre	m
Mass	kilogram	kg
Time	second	s
Electric current	ampere	A
Thermodynamic temperature	kelvin	K
Luminous intensity	candela	cd
Amount of substance	mole	mol

Supplementary Units

Quantity	Unit	Symbol
Plane angle	radian	rad
Solid angle	steradian	sr

Derived Units

Quantity	Unit	Symbol	Definition
Force	newton	N	1 N = 1 kg.m/s ²
Energy	joule	J	1 J = 1 N.m
Power	watt	W	1 W = 1 J/s
Flux	weber	Wb	1 Wb = 1 V.s
Flux density	tesla	T	1 T = 1 Wb/m ²
Frequency	hertz	Hz	1 Hz = 1 c/s (s ⁻¹)
Electric conductance	siemens	S	1 S = 1 A/V
Electromotive force	volt	V	1 V = 1 W/A
Pressure, stress	pascal	Pa	1 Pa = 1 N/m ²

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